

Makrolon® 3208

Grades / Medical devices

MVR (300 °C/1.2 kg) 5.0 cm³/10 min; medical devices; suitable for ETO and steam sterilization at 121 °C; biocompatible according to many ISO 10993-1 test requirements; high viscosity; injection molding - melt temperature 280 - 320 °C; available in transparent and opaque colors

ISO Shortname

ISO 7391-PC,M,(,,-)05-9

Property	Test Condition	Unit	Standard	typical Value
Rheological properties				
C Melt volume-flow rate	300 °C; 1.2 kg	cm ³ /10 min	ISO 1133	5.0
C Molding shrinkage, parallel	60x60x2 mm; 500 bar	%	ISO 294-4	0.7
C Molding shrinkage, normal	60x60x2 mm; 500 bar	%	ISO 294-4	0.75
Molding shrinkage, parallel/normal	Value range based on general practical experience	%	b.o. ISO 2577	0.6 - 0.8
Melt mass-flow rate	300 °C; 1.2 kg	g/10 min	ISO 1133	5.5
Mechanical properties (23 °C/50 % r. h.)				
C Tensile modulus	1 mm/min	MPa	ISO 527-1,-2	2350
C Yield stress	50 mm/min	MPa	ISO 527-1,-2	65
C Yield strain	50 mm/min	%	ISO 527-1,-2	6.3
C Nominal strain at break	50 mm/min	%	ISO 527-1,-2	> 50
Stress at break	50 mm/min	MPa	ISO 527-1,-2	75
Strain at break	50 mm/min	%	b.o. ISO 527-1,-2	120
C Tensile creep modulus	1 h	MPa	ISO 899-1	2200
C Tensile creep modulus	1000 h	MPa	ISO 899-1	1900
Flexural modulus	2 mm/min	MPa	ISO 178	2350
Flexural strength	2 mm/min	MPa	ISO 178	95
Flexural strain at flexural strength	2 mm/min	%	ISO 178	7.2
Flexural stress at 3.5 % strain	2 mm/min	MPa	ISO 178	72
C Charpy impact strength	23 °C	kJ/m ²	ISO 179-1eU	N
C Charpy impact strength	-30 °C	kJ/m ²	ISO 179-1eU	N
Charpy impact strength	-60 °C	kJ/m ²	ISO 179-1eU	N
Charpy notched impact strength	23 °C; 3 mm	kJ/m ²	ISO 7391/b.o. ISO 179-1eA	80P
Charpy notched impact strength	-30 °C; 3 mm	kJ/m ²	ISO 7391/b.o. ISO 179-1eA	18C(P)
Izod notched impact strength	23 °C; 3 mm	kJ/m ²	ISO 7391/b.o. ISO 180-A	75P
Izod notched impact strength	-30 °C; 3 mm	kJ/m ²	ISO 7391/b.o. ISO 180-A	20C(P)
C Puncture maximum force	23 °C	N	ISO 6603-2	5800
C Puncture maximum force	-30 °C	N	ISO 6603-2	6700
C Puncture energy	23 °C	J	ISO 6603-2	65
C Puncture energy	-30 °C	J	ISO 6603-2	75
Ball indentation hardness		N/mm ²	ISO 2039-1	111
Thermal properties				
C Glass transition temperature	10 °C/min	°C	ISO 11357-1,-2	150
C Temperature of deflection under load	1.80 MPa	°C	ISO 75-1,-2	130
C Temperature of deflection under load	0.45 MPa	°C	ISO 75-1,-2	142
C Vicat softening temperature	50 N; 50 °C/h	°C	ISO 306	150
Vicat softening temperature	50 N; 120 °C/h	°C	ISO 306	151
C Coefficient of linear thermal expansion, parallel	23 to 55 °C	10 ⁻⁴ /K	ISO 11359-1,-2	0.65
C Coefficient of linear thermal expansion, transverse	23 to 55 °C	10 ⁻⁴ /K	ISO 11359-1,-2	0.65
C Oxygen index	Method A	%	ISO 4589-2	27
Thermal conductivity, cross-flow	23 °C; 50 % r. h.	W/(m·K)	ISO 8302	0.20
Resistance to heat (ball pressure test)		°C	IEC 60695-10-2	141
Flash ignition temperature		°C	ASTM D1929	480
Self ignition temperature		°C	ASTM D1929	550

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Property	Test Condition	Unit	Standard	typical Value
Other properties (23 °C)				
C Water absorption (saturation value)	Water at 23 °C	%	ISO 62	0.30
C Water absorption (equilibrium value)	23 °C; 50 % r. h.	%	ISO 62	0.12
C Density		kg/m ³	ISO 1183-1	1200
Bulk density	Pellets	kg/m ³	ISO 60	660
Material specific properties				
Refractive index	Procedure A	-	ISO 489	1.587
Haze for transparent materials	3 mm	%	ISO 14782	< 0.8
Luminous transmittance (clear transparent materials)	1 mm	%	ISO 13468-2	89
C Luminous transmittance (clear transparent materials)	2 mm	%	ISO 13468-2	89
Luminous transmittance (clear transparent materials)	3 mm	%	ISO 13468-2	88
Luminous transmittance (clear transparent materials)	4 mm	%	ISO 13468-2	87
Processing conditions for test specimens				
C Injection molding-Melt temperature		°C	ISO 294	310
C Injection molding-Mold temperature		°C	ISO 294	90
C Injection molding-Injection velocity		mm/s	ISO 294	200

C These property characteristics are taken from the CAMPUS plastics data bank and are based on the international catalogue of basic data for plastics according to ISO 10350.

Impact properties: N = non-break, P = partial break, C = complete break



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Disclaimer

Typical value

These values are typical values only. Unless explicitly agreed in written form, they do not constitute a binding material specification or warranted values. Values may be affected by the design of the mold/die, the processing conditions and coloring/pigmentation of the product. Unless specified to the contrary, the property values given have been established on standardized test specimens at room temperature.

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Covestro Medical Grades

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